Weed control systems in glyphosate resistant corn. Brownstown, Illinois, 2004. Simmons, F. William, Douglas J. Maxwell, and Dawn E. Nordby. The objective of this research was to evaluate herbicide programs in glyphosate resistant corn. The study was established at the Brownstown Agronomy Research Center, Brownstown. The soil was a Cisne silt loam with a pH of 6.3 and 1.5% organic matter. Pioneer 33P67 corn was planted 2 inches deep on May 11 in 30 inch rows. Treatments were arranged in randomized complete blocks with three replications of plots 10 by 30 feet. Herbicides were applied with a CO_2 backpack sprayer delivering 20 gpa and equipped with 8003 flat fan nozzles. Application information is listed below:

Date	May 12	June 3	June 9
Application	pre	epost	post
Temperature (F)			- 0
Air	77 70	75 	72
Soil	72	71	70
Soil Moisture	moist	moist	moist
Wind (mph)	12-S	5-SW	7-W
Sky Cover (%)	50	50	100
Precip. after application	0.05	0.00	0.00
Week 1 (inch)	0.65	0.00	0.89
Week 2 (inch)	1.79	0.90	0.22
Relative humidity (%)	65	60	75
Corn			
Leaf no.	_	3	4
Height (inch)	_	6	8
Giant Foxtail			
Leaf no.	-	2	3
Height (inch)	_	2	3
Common Cocklebur			
Leaf no.	-	1	3
Height (inch)	-	2	3
Common Ragweed			
Leaf no.	-	1	3
Height (inch)	-	2	3
Common Waterhemp			
Leaf no.	-	3	5
Height (inch)	-	1	2

No crop injury was observed from the preemergence treatments. Some minor crop response was observed for the early-postemergence and postemergence applications. Soil-applied treatments containing mesotrione inceased control of cocklebur compared to treatments containing atrazine and an acetamide herbicide. KIH-485 provided superior control of broadleaf weeds when combined with atrazine, as compared with s-metolachlor and atrazine. Flufenacet and isoxaflutole combinations did not adequately control cocklebur, however the addition of isoxaflutole to flufenacet and atrazine boosted cocklebur control to acceptable levels. Postemergence applied treatments containing glyphosate and growth regulator herbicides with residual soil activity controlled cocklebur better than those treatments of glyphosate applied alone to existing cocklebur populations. The best total weed control without glyphosate, as rated 9 days after the postemergence treatment, was provided by mesotrione and atrazine following a successful preemergence treatment or early-postemergence treatments containing glyphosate, atrazine, and a growth regulator. (Dept. of Crop Sciences, University of Illinois, Urbana).

Table. Weed control systems in glyphosate resistant corn. Brownstown, Illinois, 2004. (Simmons, Maxwell, and Nordby).

Sametokatrakmesokbenoxacor	Treatment	Appl Rate	Time	Zeams 6-3	6-3	Xanst 6-3	Ambel 6-3	6-3	Zeams 6-18	6-18	Xanst 6-18	Ambel 6-18	Amata 6-18
S-metokatrakmeso&benoxacor 1.09+1.09+0.14 pre 0 99 92 99 99 0 98 95 99 99 99 99 99 99		(lb/A)		% inj					% inj				
S-metokatrakmesoxbenoxacor 1264-163 pre 0 99 85 99 99 0 0 94 78 99 99 99 99 99 99 99 99 99 99 99 99 99	S-meto&atra&meso&benoxacor1	1.09+1.09+0.14	•										
Smetolachlor&altrazine&noxacor 26+1 83 pre 0 99 88 98 98 0 98 85 82 88 88 80 99 90 90 67 86 80 80 80 80 80 80 80									_				
Metolachiorkatrazine 126+1163													
Metolachlorikatrazine-isoxaflutole 126+1183+0.047 pre 0 96 88 99 99 0 93 87 99 99 98 99 98 99 99			•						-				
AcetochoriorAarizaineAdichlormid 2041-5 pre 0 96 96 99 99 0 98 96 88 97 99 99 99 99 99 99				-					-				
#Humestulamakclopyrald									-				
#isoxaflutole 0.07			pre	0	96	96	99	99	_	98	96	98	
Flufenacelkisoxaflutole* 0.446+0.054+1.0 pre 0 99 77 99 99 0 88 63 99 99 99 99 10 88 63 99 99 99 99 99 99 99 99 99 99 99 99 99			pre	0	99	89	99	99	0	68	84	99	99
Flufenacet&isoxaflutole*-atrazine	Flufenacet&isoxaflutole3+atrazine	0.31+0.067+1.0	pre	0	99	88	99	99	0	96	80	99	92
KIH-485&atrazine	Flufenacet&isoxaflutole	0.446+0.054	pre	0	95	67	96	93	0	96	62	95	91
Acetochlor&atrazine&Adichlormid	Flufenacet&isoxaflutole ⁴ +atrazine	0.446+0.054+1.0	•	0	99	77	99	99	0	98	63	99	99
#Immetsulam&clopyralid	KIH-485&atrazine	0.15+0.95	pre	0	99	77	99	99	0	99	63	99	99
+Herbimax**-N-Pak AMS*	Acetochlor&atrazine&dichlormid	1.88+1.4	pre	0	93	96	99	99	0	92	93	98	99
Acetochlor&atrazine&dichlormid	+flumetsulam&clopyralid	0.034+0.094	•										
Highersulam&clopyralid			pre	0	96	96	99	98	2	99	92	99	97
+Harbimax+N-Pak AMS			•										
Herbimax+N-Pak AMS													
Dimethenamid-p&atrazine													
Hedicamba&atrazine+N-Pak AMS			pre	0	96	88	96	98	8	99	88	99	98
Dimethenamid-p&atrazine 0.85+1.65 pre epost ep	•		ρ. σ	·					Ū				
+diciamba&diffuenzopyr			nre	0	98	88	99	99	3	99	87	99	99
#Activator 90*+N-Pak ÁMS 0.25%+3.67% 0.56				U	00	00	00	00	O	00	01	00	00
Dimethenamid-p	_ ''		ороск										
+glyphosate ⁸ +dica&diiflufenzopyr			nre	0	96	50	98	96	3	99	73	99	95
+atrazine			•	U	00	00	00	00	O	00	70	00	00
#Activator 90"+N-Pak AMS			Срозі										
Glyphosate®+dicamba&diiflufenzopyr 0.56+0.094+0.037 epost 0 - - - - - 2 99 98 99 99 99 99 9	_												
+atrazine			anaet	Λ					2	90	08	90	90
#Activator 907+N-Pak AMS			ерозі	U	-	-	-	-	2	99	90	33	99
Glyphosate \$\frac{9}{\text{clamba}} + \frac{1}{\text{clamba}} & 0.56 + 0.25 & epost \ 0.75 + 3.67\% \ 0.75 + 3													
+atrazine+N-Pak AMS			onact	0					5	00	06	00	00
S-metolachlor&atrazine&benoxacor ⁹ 0.45+0.58 pre 0 99 88 99 99 0 99 99 99 99 99 98 99 99 99 99 99 99 99			eposi	U	-	-	-	-	5	90	90	99	99
+nicosulfuron&rimsulfuron&atra +mesotrione + Herbimax+N-Pak AMS 1.0%+3.67% S-metolachlor&atrazine&benoxacor +mesotrione&atrazine 0.094+0.50 post +Herbimax+N-Pak AMS 1.0%+2.5% Acetochlor&atrazine&dichlormid 1.13+0.84 pre 0 98 85 95 97 2 98 88 98 98 +glyphosate*0+N-Pak AMS 0.75+2.5 post lsoxafilutole+atrazine 0.07+1.0 pre 0 98 83 96 99 13 99 90 98 99 99 99 99 99 99 99 99 99 99 99 99			nro	0	00	00	00	00	0	00	00	00	00
+mesotrione +Herbimax+N-Pak AMS 1.0%+3.67% S-metolachlor&atrazine&benoxacor +mesotrione&atrazine 0.094+0.50 +Herbimax+N-Pak AMS 1.0%+2.5% Acetochlor&atrazine&dichlormid +Ilaylophosate 10+N-Pak AMS 0.75+2.5 post Isoxaflutole+atrazine 0.07+1.0 pre post +foramsulfuron+iodosulfuron +MSO11+28%N 1.0%+2.5% S-metolachlor 1.59 post +mesotrione+bromoxynil +Herbimax+28%N 1.0%+2.5% Check 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			•	U	99	00	99	99	U	99	90	99	90
+Herbimax+N-Pak AMS			eposi										
S-metolachlor&atrazine&benoxacor													
+mesotrione&atrazine				0	00	00	00	00	0	00	00	00	00
+Herbimax+N-Pak AMS			•	U	98	92	99	99	U	99	99	99	99
Acetochlor&atrazine&dichlormid			post										
+glyphosate ¹⁰ +N-Pak AMS				•	00	0.5	0.5	07	0	00	00	00	00
Isoxaflutole+atrazine			•	U	98	85	95	97	2	98	88	98	98
+foramsulfuron+iodosulfuron +MSO ¹¹ +28%N 1.0%+2.5% S-metolachlor +mesotrione+bromoxynil +Herbimax+28%N 1.0%+2.5% Check - Acetochlor&atrazine&MON4660 1.06+0.83 +glyphosate ⁸ +N-Pak AMS 0.75+3.67 S-metolachlorratrazine 1.03+0.80 - +glyphosate ⁸ +N-Pak AMS 0.75+3.67% post post - 0 98 0 73 92 7 98 57 96 97 - 0 0 0 0 0 0 0 0 0 0 0 0 0 Acetochlor&atrazine&MON4660 1.06+0.83 0 99 87 99 98 0 99 94 98 98			•	•	00	00	00	00	40	00	00	00	00
+MSO ¹¹ +28%N 1.0%+2.5% S-metolachlor 1.59 pre 0 98 0 73 92 7 98 57 96 97 +mesotrione+bromoxynil 0.094+0.094 +Herbimax+28%N 1.0%+2.5% Check - 0 0 0 0 0 0 0 0 0 0 0 0 0 0 Acetochlor&atrazine&MON4660 1.06+0.83 pre 0 99 87 99 98 0 99 94 98 98 +glyphosate ⁸ +N-Pak AMS 0.75+3.67 post S-metolachlorr&atrazine 1.03+0.80 pre 0 98 78 99 99 0 96 77 96 99 +glyphosate ⁸ +N-Pak AMS 0.75+3.67% post			•	0	98	83	96	99	13	99	90	98	99
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¹ Lexar; ² Lumax; ³ Epic Pro; ⁴ USA 2005; ⁶ Herbimax is an oil, emulsifier, and surfactant blend from Loveland Products, Inc; ⁶ N-PaK AMS is an ammonium sulfate solution from Agriliance LLC.; ⁷ Activator 90 is a non-ionic surfactant from Loveland Products, Inc; ⁸ Roundup Weathermax; ⁹ Cinch ATZ; ¹⁰ GF-1279 from DowAgroSciences; ¹¹ MSO is a methylated seed oil and surfactant blend from Loveland Products, Inc.